

IN THE CLAIMS:

Claim 1 (currently amended): A method of treating contaminants in a soil-containing in situ environment comprising: ~~adding~~ generating a stabilized source of peroxide in an effective amount of up to 35% by weight in water and ozone in an effective amount of 2 to 15% by volume in air, administering the peroxide and the ozone to the in situ environment under spatial and temporal control conditions to form a reactive species principally in the form of hydroxyl radicals to oxidize at least one of the contaminants without acidification of the environment.

Claim 2 (previously presented): The method of claim 1 wherein the stabilized source of the peroxide is selected from the group consisting of hydrogen peroxide, sodium peroxide and calcium peroxide.

Claim 3 (previously presented): The method of claim 2 wherein the stabilized source of the peroxide is hydrogen peroxide.

Claim 4 (previously presented): The method of claim 1 further comprising forming the stabilized source of the peroxide by combining a source of peroxide with a stabilizer selected from the group consisting of acids, salts and mixtures thereof.

Claim 5 (original): The method of claim 4 wherein the stabilizer is selected from the group consisting of phosphoric acid, monopotassium phosphate and combinations thereof.

Claim 6 (previously presented): The method of claim 1 comprising first adding the stabilized source of the peroxide to the in situ environment and then adding the ozone to the in situ environment.

Claim 7 (previously presented): The method of claim 1 wherein the step of adding the stabilized source of peroxide and ozone results in the formation of a reactive species, at least a portion of the reactive species comprising hydroxyl radicals.

Claim 8 (previously presented): The method of claim 1 wherein the step of adding the stabilized source of peroxide and ozone results in the formation of a reactive species, said method further comprising monitoring the concentration of the reactive species in the in situ environment.

Claim 9 (previously presented): The method of claim 1 wherein the in situ environment contains fractured bedrock.

Claim 10 (previously presented): The method of claim 1 adding the stabilized source of the peroxide and ozone at an elevated pressure.

Claim 11 (original): The method of claim 10 wherein the elevated pressure is from about 40 to 100 psi.

Claim 12 (original): The method of claim 10 wherein the in situ environment is fractured bedrock.

Claim 13 (original): The method of claim 1 wherein the concentration of the stabilized peroxide is from about 3 to 25% by weight in water.

Claim 14 (original): The method of claim 1 wherein the weight ratio of peroxide to ozone is in the range of from about 0.4 to 1.2 w/w.

Claim 15 (original): The method of claim 1 wherein the amount of ozone in air is from about 3 to 12% by volume.

Claim 16 (original): The method of claim 1 comprising injecting the ozone through a plurality of injection points in the in situ environment.

Claim 17 (canceled without prejudice).

Claim 18 (new): The method of claim 1 comprising allowing the stabilized source of peroxide to migrate through the in situ environment and then adding the ozone to the in situ environment.

Claim 19 (new): The method of claim 18 comprising adding the ozone at multiple points to the in situ environment.

Claim 20 (new): The method of claim 1 further comprising predetermining at least one of the concentration of the stabilized source of peroxide, the concentration of ozone and an effective number of treatment cycles necessary to effectively treat the contaminants in the in situ environment.

Claim 21 (new): The method of claim 20 wherein the predetermining step comprises removing at least one sample of the in situ environment and treating the sample with the concentration of the stabilized source of peroxide, the concentration of ozone and a number of treatment cycles sufficient to treat the contaminants contained in the sample, and applying such concentrations and treatment cycles to the contaminants contained in the in situ environment.